E&MJ METAL AND MINERAL MARKETS

WEEKLY MARKET INFORMATION ISSUED BY THE PUBLISHERS OF ENGINEERING AND MINING JOURNAL

VOL. 28 | NEW YORK, DECEMBER 19, 1957 | No. 51

THIS WEEK IN THE MARKETS...

- **Katanga contemplates 1958 curtailment; denies reports of recent reductions.**
- **White Pine to deliver copper to Government. Several producers curtailing.**
- **GSA asks for lead and zinc; industry sales low. Silver and tin prices ease.**

COPPER – domestic average 26.140c per lb f.o.b. ref'y

Pricings of copper in the U. S. rose somewhat this week, in part, reflecting a spurt in buying brought about by news that some producers were reducing output. Most of the increase went to the low price sellers and therefore the weighted average price dropped. Custom smelters by Tuesday had gone to 25½c. The boost was a psychological result of the rise in Europe as well as some increased buying; these in turn were consequences of announcements of output reductions.

Foreign sales were slightly higher this week; buying accelerated for a day when the European market firmed. Foreign sales were very slow Tuesday and Wednesday. Reports of production reductions over the weekend and on Monday produced sharp short covering on the LME and along with very heavy buying on the LME by a large African producer pushed up the price.

A large U. S. general business daily paper said Monday morning: "Reports from abroad say . . . Katanga . . . quietly initiated a 10% cut recently in its output . . . a month." The reply to our cable query to the Katanga head office in Brussels said: 1) "Katanga made no statement concerning 10% reduction"; 2) it had curtailed its 1957 production (apparently relative to its 1956 output) and 3) it is "studying present position and contemplates reduction production 1958 over the 1957 curtailment." The "output" statistics regularly published are sometimes taken to be production figures for the Belgian Congo; in fact, they are export figures and only over the very long run are they useful in assessing actual output.

Kennecott finally announced an output reduction beginning in January of about 12%, 3,800 tpm, of its U. S. mine production – it will be in Utah, Nevada, and New Mexico. The facilities will operate 12 days and shut down two of every two-week period. A spokesman said lack of demand in the U. S. led to the decision. Howe Sound is cutting its British Columbia output from 750 tpm to 450 tpm. Cerro de Pasco (see p. 9) is reducing 11%, about 325 tpm.

Many factors believe (hope) the Chilean Government will now permit a cutback in Chile.

The announcements boosted some prices. Katanga rose to 23.17c Tuesday from 22.7c. GIRM, the centralized French buying and reselling agency, went up to 24.38c from 23.95c; the LME went to 23.62 prompt bid but was off to 22.60c Wednesday afternoon. Other prices may not hold.

White Pine was authorized this week to begin delivery of a good proportion of its output to the Government on its expansion "put" contract.

TIN – 92¾c a lb N. Y.

Export quotas, effective Dec. 15, have yet to spur consumer interest. World prices were higher on the first effective market day, but have since eased.

LEAD – 13c New York

Lead sales this week were 3,636 short tons. Lead sales so far this month have been even worse than in November which was quite poor. The regular November sales statistics show 42,051 tons sold; October was 58,012 tons. Many factors say December shows signs of being worse. To some extent December is normally poor. But some observers suggest the general poor showing of the economy may be affecting the lead market.

GSA asked for tenders of lead; delivery will be by the middle of February.

ZINC – 10c East St. Louis

Zinc sales were even lower this week than last. Sales so far this month have been worse than November. In part this reflects a normal seasonal situation but many sellers feel a possible recession in general business (which had hit the nonferrous metal industries many months ago) has caused some hesitancy in buying. The slowness with which zinc and lead are moving suggests to some the view that buyers feel any price rise – from higher tariffs or other causes – is far off.

GSA asked for tenders of zinc; delivery is to be by mid-February. The last few months some sellers did not offer zinc and lead. This may not happen this month.

Zinc in London yesterday morning was about 7.86c prompt bid. This is about 0.2c above the low.

SILVER – 89.625c per oz

Silver prices have dropped to well under the U. S. Government buying price. Probably all U. S. mined silver that was accumulated has been cleared out by sales to the Treasury. A number of matters are probably responsible for the weakening in silver: 1) the usual seasonal slow up in use for silverware and other products, the sale of which rises near Christmas; 2) the general slump in business has had some effect on silver; 3) more silver scrap is being delivered to fabricators. Last year a Lifo problem firmed the market in December; this influence is absent this year. Some factors think silver could, but probably will not, drop a little more.

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E&MJ METAL AND MINERAL MARKETS

WEEKLY MARKET INFORMATION ISSUED BY THE PUBLISHERS OF ENGINEERING AND MINING JOURNAL

GEORGE H. CLEAVER.....*Market Editor*
CARL COASH.....*Publisher*
ALVIN W. KNOERR.....*Editor*
J. R. O'CONNELL JR., *Asst. Market Editor*
DONALD C. MCGRAW JR., *Adv. Sales Mgr.*

E&MJ METAL AND MINERAL MARKETS is published each Thursday with a daily quotation for copper, lead, zinc, tin, aluminum and silver. Commodities that change infrequently are quoted at weekly or monthly intervals.

E&MJ METAL & MINERAL MARKETS, December 19, 1957, Vol. 28, No. 51. Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. Member, Audit Bureau of Circulations. Publication office, 330 W. 42nd St., New York 36, N. Y. See panel below for directions regarding subscriptions or change of address.

Executive, Editorial, Circulation and Advertising offices, 330 W. 42nd St., New York 36, N.Y. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice President, Publications Division; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator.

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Subscription rates for individuals in the field of publication: United States and Possessions, $10 per year, $16 for 2 years, single copy, 50 cents; Canada, $10 per year, $16 for 2 years; Other Western Hemisphere and the Philippine Islands, $15 per year, $25 for 2 years, $30 for 3 years; elsewhere, $25 per year, $40 for 2 years, $50 for 3 years; payable in advance. Single copy outside U.S. and Canada, 75 cents (U.S. currency); payable in advance. Airmail rates available on request.

Second-class mail privileges authorized at New York, N. Y. Title registered in U. S. Patent Office.

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SUBSCRIPTIONS: Send subscription correspondence and change of address to Subscription Manager, E&MJ METAL AND MINERAL MARKETS, 330 West 42nd Street, New York 36, N. Y. Subscribers should notify publisher promptly of any change of address, giving old as well as new address, and including postal zone number, if any. If possible, enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

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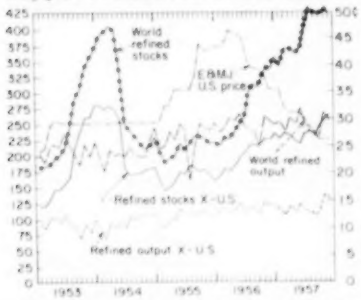
Copper Production and Stocks



Data are from the Copper Institute and are in thousands of short tons. They include November 1957. World refined output and stocks do not include the U.S.S.R., Japan, the Scandinavian countries, Australia, Yugoslavia, and the Mesina Mine in Transvaal. The two series "X-U.S." are the above world producer statistics less the U. S. No fabricator stocks are included.

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November Copper Shipments Up; Output Outside U.S. at Record

World stocks of refined copper held by producers dropped 2,313 short tons in November, according to Copper Institute figures. Total deliveries were shown as 255,495 tons – however, the Institute indicates that 5,038 tons of this amount were possibly counted twice. Apparently this followed from the importation into the U. S. of copper that had been refined in the U. S. and exported. Possibly some copper sold by the British Board of Trade is also involved. Shipments of copper to buyers that are not consumers (or dealers) were 10,098 tons. October was 12,110 tons.

World mine production and refined output remained very high. Though refined stocks dropped, blister stocks rose 4,071 tons.

Deliveries to U.S. fabricators dropped to 106,815 tons and deliveries to fabricators outside the U. S. rose by about 16,000 tons; it was the highest since March of this year.

Mine output outside the U. S. reached a new record in November. October revised figures show it also had been a new record. Refined output, though down from October, was still the second highest on record.

Copper Institute data for October and November 1957 follow:

United States

	Oct.	Nov.
Production:		
Crude primary	(a) 93,078	89,253
Crude secondary	9,029	8,011
Total	101,818	97,264
Refined copper	129,832	128,371
Deliveries, refined	114,293	106,815
Stock, end, ref'd	166,976	161,552

Outside United States

Production:		
Crude primary	(a) 161,767	164,422
Crude secondary	697	627
Total	162,387	165,049
Refined copper	137,106	129,871
Deliveries, refined	132,087	148,680
Stock, end, ref'd	261,015	264,126

(a) Corrected

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American Quicksilver Institute To Represent Industry

San Francisco (McGraw-Hill San Francisco News Bureau): A new organization has been set up to act as a spokesman for the quicksilver industry.

Called the American Quicksilver Institute, it is headed by S. R. Smith, president of Sonoma Quicksilver Mines Inc, Guerneville, Calif. Louis D. Gordon, secretary of the Nevada Mining Association will act as secretary-treasurer.

Directors, in addition to Smith and Gordon, are Arthur L. Albee, president of Bonanza Oil & Mines Corp, Sutherlin,

(Continued on p. 10)

General Imports of Tungsten Rose 41% in August

U.S. production of tungsten concentrate in August 1957 was 15% less than in the preceding month although shipments from mines increased 49%, according to the U.S. Bureau of Mines. Imports for consumption decreased by 4% and consumption increased 21%.

Production and shipments of tungsten products were 316,000 and 565,000 lb, respectively, in August compared with 187,000 and 510,000 lb, respectively, in July 1957. Tungsten metal powder production, including both hydrogen and carbon reduced was 267,000 lb an increase of 30% over July 1957.

Consumption of tungsten products increased 15%. Steel and other alloys accounted for 42% of the consumption of tungsten products, including ferrotungsten, scheelite, metal powder and purchased scrap, metal powder consumed in carbides or as metallic tungsten accounted for 51% of consumption.

General imports of tungsten ore and concentrate into the United States were 777,597 lb (tungsten content) in August 1957, a decrease of 41% compared with July 1957. This quantity represents the ore and concentrate received in the U.S. irrespective of ultimate disposition; Brazil (374,902 lb), Bolivia (247,903 lb), Australia (50,576 lb), and Peru (45,824 lb) supplied 92% of the total receipts.

Imports for consumption of ferrotungsten were 65,886 lb.

Exports of tungsten ore and concentrate were 44,359 lb (gross weight) – 22,359 lb to Japan and 22,000 lb to Sweden.

Statistics of tungsten ore and concentrate in the U.S. in July and August, in thousands of pounds of tungsten metal:

	July	Aug.
Production	484	410
Mine shipments	403	600
Imports for Consumption	1,098	1,656
Consumption	483	586
Industry stocks, end:		
Consumers, dealers	3,112	3,688
U.S. producers	4,127	3,949
Total	7,239	7,637

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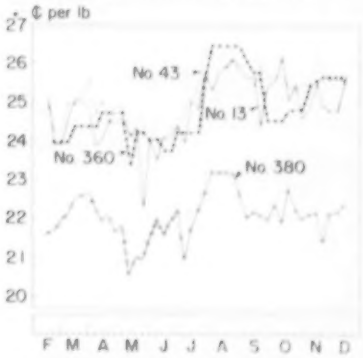
Secondary Aluminum Prices



The prices charted above are the weekly weighted average prices calculated by *M&MM* from data supplied each week by major U. S. secondary aluminum producers. Each firm provides the quantity of sales and the prices at which the sales were made. Latest date in the chart is Dec. 11.

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Miscellaneous Metals

Wholesale lots, (a) f.o.b. ship. pt.; (b) delivered; (c) f.o.b. N. Y.

ALUMINUM: lb (b), 30 lb ingot 99.5%, 28.1c; pig, 26c. Ingot, 99.75%, 28.6c; 99.85%, 30.1

ANTIMONY: lb, Dec. 12-18, boxed N.Y. (c), 36.590c; bulk (a), 33c; boxed (a), 33½c

BISMUTH: lb, ton lots, $2.25

CADMIUM: lb (b), Dec. 12-18, sticks $1.70; shapes, $1.70

CALCIUM: lb, ton lots, slabs, pieces, $2.05

CHROMIUM: lb (b), 97%, .5%C, $1.29; 9-11%C, $1.38; Elec., 99%, $1.29. Eff. 9-1-56

COBALT; lb (c), 500 lb lots, $2.00; 100 lb, $2.02; less, $2.07. Eff. 2-1-57; fines, $2.00

COLUMBIUM: lb, 99½%, dep. on lot: roundels, $55-70; electrode segments, $60-75; rough ingots, $65-80

GALLIUM: gr, 1000 gr lots, $3; less, $3.25

GERMANIUM: gr, 1000 lots, 1st red., 40c (b)-43½c(a); intrinsic, 44½c(b)-48½(a); 10,000 lots, 1st red., 38c(b)-42½c(a); intrinsic, 42½c(a)-45½c(b)

INDIUM: troy oz, 99.9%, $2.25

IRIDIUM: troy oz, $100-$110

LITHIUM: lb 98%, $11-$14

MAGNESIUM: lb (a), 10,000 lb lots, pig ingot 99.8%, 35¼c-36.65c; notched ingot, 36c-37.45c. Eff. 8-13-56

MANGANESE: lb (b), 95½%, carloads bulk, 45c; packed, 45¾c; Elec. (a), frt. allowed E. of Miss., 99.9%, 34c; ton lots, 36c. Eff. 4-1-57. Prem. for hydrogen removed, ¾c lb

MOLYBDENUM: lb (a), powder, carbon red., $3.35. Eff. 8-56

NICKEL: lb (a), duty included, 74c. Eff. 12-6-56; dealers, 70-77c; powder (b) U. S., 80-85c; sinter (a), 70¼c. Eff. 12-6-56

OSMIUM: oz, $80-100, nominal

PALLADIUM: troy oz, $21-22½

PLATINUM: troy oz, $77-80, aver., $78

QUICKSILVER: flask, N. Y. $225-30

RADIUM: mg, Ra content, $16-21½

RHODIUM: troy oz, $118-$125

RUTHENIUM: troy oz, $45-$55

SELENIUM: lb, comm. grade, $7.50; high purity, $10.50. Eff. 11-18-57

SILICON: lb (b), 97%, max. .51-.75% Fe, crushed, 23.85c; lump, 22c. Eff. 9-1-57. Hyper-pure: #1, $360; #2, $250; #3, $160; solar cell, $100. Eff. 4-1-57

SODIUM: lb, carloads, 16½c; less, 17c

TANTALUM: kilo (2.2 lb): rod, $128; sheet, $100

TELLURIUM: lb, $1.65-$1.75

THALLIUM: lb, $12.50

TITANIUM: lb (a), A-1, 99.3%, max. .3% Fe, $2.25; max. .5% Fe, $2.00. Eff. 6-3-57

TUNGSTEN: lb, 98.8%, 1000 lb lots, $3.15. Eff. 8-1-57. Hydrogen red., 99.99%, $4.10-4.20. Eff. 6-10-57

VANADIUM: lb, 90% V, 100 lb lots, $3.65

ZIRCONIUM: lb (a), sponge, powder, platelets: low hafnium, $7-14; comm. $5-10

Inter-American Council to Consider Tariff Resolution

Washington (AP): The Inter-American Economic and Social Council has received — and recommended for quick decision — a resolution saying increased U.S. tariffs on lead and zinc would harm Latin American economies.

The surprise Resolution was presented to the Council by Uruguayan representative Washington P. Bermudez, who said it was a matter of urgency, and asked that the Council take a position on the matter. (See *M&MM*, Dec. 12, p. 11).

His proposal touched off a procedural debate over whether or not the proposal should be placed ahead of other pending matters, especially since the representatives had no formal report before them.

With only the U.S. opposing, and Venezuela abstaining, the Council voted 15-1, to change the order of the day, and give priority to Bermudez' resolution.

After the vote, Mexico's ambassador Armando Amador — head of the Council's Basic Products Committee which already had ordered a study of the situation — moved that the resolution be referred to that group.

The study should be ready by Monday, he indicated, and the Council could meet Dec. 19 to take a decision. The Council agreed to this procedure.

This marked a step-up in the Committee's program. It had planned earlier to have the study ready by Dec. 23, consider it at a meeting Dec. 26, and perhaps request a Council meeting on Dec. 27 to take definite action.

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Lead Tariff Denounced

Washington (AP): An Inter-America Committe has denounced proposals to raise tariffs on imports of lead and zinc.

The criticism, one of the sharpest against the U. S. in years from a hemispheric organization, said restriction of such imports would violate frequently-proclaimed policies of Inter-American organizations.

The Washington Government's lead and zinc proposals were opposed by the 10-nation committee on basic products of the Inter-American Economic and Social Council, (ECOSOC) an agency of the Organization of American States (OAS).

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Soviets Claim 40% of World's Iron Ore Reserves

Vienna (McGraw-Hill World News): The USSR claims to have proven deposits of iron ore of more than 35-billion metric tons, or roughly 40% of the world's known iron ore reserves. *Pravda*, in making this statement, pointed to the 2-billion metric tons of iron ore reserves reported during the Tsarist government.

To satisfy the ever increasing demands of the country for iron and steel, the Soviet iron ore business received orders to step up extraction of ore 3 to 3½ times during the next 15 years, to reach a mining yield ranging between

(Continued on p. 5)

Metallic Ores

Tons of 2000 lb or units of 20 lb, unless otherwise stated. Short ton unit=stu; long ton unit=ltu. (a) c.i.f. U. S. ports, (b) f.o.b. ship. pt., (c) f.o.b. mine or mill

ANTIMONY ORE: stu of Sb cont., 50-55%, $2.25-2.40; 60% $2.40-2.60; lump, 65%, $3.00-3.10

BERYLLIUM ORE: stu BeO cont., 10-12% (c), $46-48 dep. on quan.; imported ore, (a), $36-37

CHROME ORE: lt, dry basis, subject to penalties if guarantees are not met, f.o.b. cars, Atlantic ports

Rhodesian: (c)
48% Cr_2O_3, 3 to 1 ratio ..... (a)$47-$49
48% Cr_2O_3, 2.8 to 1 ratio ..... (a)$44-$46
48% Cr_2O_3, no ratio ..... (a)$37-$39
South African (Transvaal): (c)
48% Cr_2O_3, no ratio ..... $36-$37
44% Cr_2O_3, no ratio ..... $26-$26.50
Turkish (basis 48% 3 to 1):
48% Cr_2O_3, 3 to 1 ratio, lump and concentrates ..... (a)$55-$57
46% Cr_2O_3, 3 to 1 ratio, lump and concentrates ..... (a)$52-$54
Pakistan (Baluchistan):
48% Cr_2O_3, 3 to 1 ratio ..... (a)$52-$53
(a) Nominal. (b) Long term contracts.
(c) 1958 shipment.

COBALT ORE: lb Co cont., (b); Canadian Gov't buying prices, 9%, $1.30; 10%, $1.40; 11%, $1.50; 12%, $1.60. Free market, 10%, 60c; 11%, 70c; 12%, 80c

COLUMBITE ORE: lb of pentoxide, 65% Cb_2O_5, col-tant. ratio 10 to 1, $1.15-1.20; 8½ to 1, $1.00-1.05

IRON ORE: lt, lower lake ports, Lake Superior ore 1957: *Mesabi, non-bessemer*, 51½% Fe, $11.45; *Old Range, non-bessemer*, $11.70 — *Mesabi, bessemer*, 51½% Fe, $11.60; *Old Range, bessemer*, $11.85 — *Eastern ores*, cents per ltu, del. furnaces, foundry and basic, 56-62%, 17-18c — *Swedish*, 60-68% (contracts), stu 25c+dep. on grade, (a) Atlantic — *Brazilian*, gross ton 68½% Fe, (b), $14.-60, prem. for low P. Eff. 1-1 & 4-1, 1958

MANGANESE ORE: Indian, ltu Mn, 46-48% Mn, (a), export duty included, import duty extra, $1.36-$1.39, nominal. Exclusive of export duty, $1.225-$1.255. Low Fe (max. 2%), 48%, ltu, duty extra, nominal. Mn dioxide, 84% MnO_2, lt, bulk, crude, (a), $110-120. Chem. grade, st, coarse or fine, 84% MnO_2, carloads, (b) Eff. 1-1-57: paper bags, $144.50; burlap bags, $148.00; drums $152.50.

MOLYBDENUM ORE: lb cont. Mo, 90-95% MoS_2, (b) Climax, $1.18+cost containers; (b) Washington, Pa., $1.23

TITANIUM ORE: gross ton, ilmenite, 59½% TiO_2, f.o.b. cars, Atlantic ports, $26.25-30.00. Rutile, 94%, st, for del. within 12 mos. $120-125; lower for more distant delivery

TUNGSTEN ORE: stu WO_3, 65% basis: foreign ore, nearby arrival, (a), duty extra, wolfram, $12-$13; scheelite, $11-$12 dep. on grade. Low moly scheelite higher. U. S. scheelite, stu, (c) $19.50-$20. London, ltu WO_3, good ore, wolfram, 102s bid, 107s asked

VANADIUM ORE: lb V_2O_5 cont., dom., (c), 31c

ZIRCON ORE: (sand), lt, (a) Atlantic, 65% ZrO_2, $50-51, dom. 66%, st, (b) Jacksonville, $50; Starke, Fla., $55

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GENERAL AGENTS
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Iron Ore *(Continued from p. 4)*

250-million and 300-million metric tons per year. Within a few years, the Soviet plan is to be the world's biggest producer of iron ore.

The future expansion will mainly come from tapping newly discovered deposits; among them, the Kursk magnetic anomaly, the Kazakhstan and the Siberian deposits. The unique deposits of rich magnetite and poor phosphorite ore in Kustanai, the high Fe-content iron ore of the Angara-Ilynsky region of Irkutsk Oblast, in Yakt, and in Gornaya-Shoriya are all to be started during this 15-year period.

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Koenig Doubts Copper Cuts Will Materially Affect Market

Reduction in copper production approximating 11% has been announced by Cerro de Pasco Corp., principal producer in Peru of copper and other nonferrous metals.

Robert P. Koenig, Cerro de Pasco president, said that the corporation's decision to cut back its copper output was undertaken "with full realization that the move will not materially affect the world copper market."

He pointed out that "a reduction in output is particularly necessary during this period in the cyclical history of copper, when world demand is falling short of the industry's over-all productive capacity. Recently the industry has demonstrated a statesmanship of a high order," Koenig declared, "and we of Cerro de Pasco wish to be recorded in support of this constructive approach."

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Rolled Metals, Etc.

BRASS — Cents per lb (base prices)

	Sheet	Wire	Rods
Yellow Brass	44.02	44.56	43.96
Best quality brass ..	45.32	45.86	45.26
Red brass 80%	46.50	47.04	46.44
Red brass 85%	47.37	47.91	47.31
Com'l bronze 90% ..	48.78	49.32	48.72
Gilding metal	49.66	50.20	49.60

Eff. Nov. 4

COPPER — Per lb Sheets, over 20 in. wide, 50.13c, rolls 20 in. and under, 48.16c; Wire, bare, carload lots f.o.b. mills 32.355c, eff. Sept. 3, 1957.

LEAD SHEETS — Per lb, full rolled, 140 sq ft 18½c.

MONEL METAL — Per lb (base prices) Standard cold-rolled sheet, 97c; cold-rolled strip, 99c Rods, hot-rolled 80c.

NICKEL — Per lb (base prices) sheets, cold-rolled, $1.13; rods, hot-rolled, 94c

NICKEL SILVER — Per lb, sheets, 10% 69.43c; 18% 66.11c; wire and rods, 10% 62.76c.

PHOSPHOR BRONZE — Per lb, sheets 5% tin, 69.07c; wire and rods, 5% 69.57c; 10% 76.18c.

ZINC — Per lb, carload lots f.o.b. mill (base price): Sheet 24c, ribbon 29½c; plates 19c.

ZINC DIE-CASTING ALLOY — Ingot per lb, carloads lots, delivered, No. 3, 14¼c; No. 5, 14¾c.

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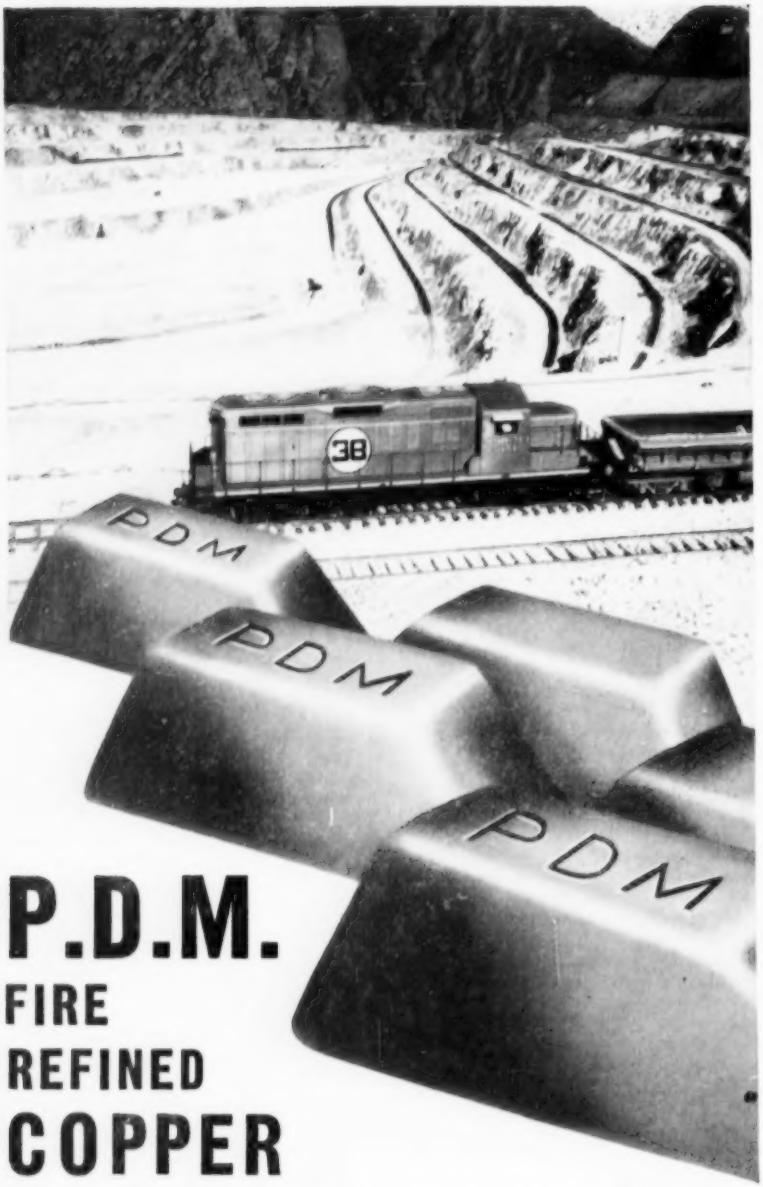

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(Unchanged from previous week)

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Producer Stocks of Mercury At 4,000 Flasks in September

Mercury production at domestic mines in the third quarter of 1957 rose 2% over the second quarter to 8,710 flasks, according to the U.S. Bureau of Mines. During the first 9 months of 1957, mine production in the U.S. totalled 23,000 flasks compared with 17,190 flasks in the corresponding period of 1956.

Despite the abandonment of a process using mercury, output from scrap was lower mainly because less metal was recovered from scrap at other operations.

General imports of mercury dropped 20% below the preceding quarter to 9,930 flasks, the lowest since the fourth quarter of 1955. All of the imports were obtained from Spain, Mexico, Yugoslavia, Canada, and Peru with Italy failing to supply any for the first time since the third quarter of 1955.

Industrial consumption of mercury increased 2,600 flasks over the second quarter to 14,600 flasks as expansions in chlorine and caustic soda plants using mercury cells more than offset declines in other large uses.

Stocks of mercury decreased as the drop in consumers' and dealers' inventories was larger than the gain in producers' stocks.

A total of 8,710 flasks of mercury was produced in the third quarter of 1957, 2% above the second quarter. Increases of 15%, 5% and 2%, respectively, in Nevada, Oregon and California were partly offset by a 14% decrease in Alaska and a drop of 7% in Idaho. Of the total production, California supplied 49%, Nevada 16%, Alaska 15%, Oregon 14% and Idaho 6%. Twelve mines each produced 100 flasks or more during the quarter and accounted for 90% of the output. The leading producers were as follows:

Statistics of mercury in the second and third quarter of 1957 and the third quarter of 1956, in flasks of 76 pounds:

	1956	1957	
	3 qtr.	2 qtr.	3 qtr.
Production:			
Mine	6,300	8,560	8,710
Secondary	1,110	1,660	1,550
General imports	13,938	12,478	9,930
Exports	60	308	704
Consumption	12,300	12,000	14,600
Stocks, end:			
Consumers, dealers	18,500	18,000	15,200
Producers	1,041	2,699	4,140

•

Nickel Imports Increased 23% in September

Consumption of nickel in September was 4% less than in August, but imports were 23% more, according to the U.S. Bureau of Mines.

Consumption of nickel in the U.S. by 204 companies, which accounted for 94.7% of nickel in all forms used in 1956, was 20,354,387 lb in September, which indicated that total consumption

(Continued on p. 8)

SUBSTITUTE for ferrotungsten has been announced by Metal & Residues, Inc., Springfield, N. J. New product is called M & R Tungsten Sponge Mix (patent pending), a direct outgrowth of a recently developed process that wins tungsten from the ore by a direct pyrometallurgical process. When the Mix is heated to sufficiently high temperature it yields a porous sponge-like mass of metallic tungsten that will go into solution rapidly.

BORON-BASED rocket fuel in solid form under development at Callery Chemical Co., Callery, Pa. is probably the most efficient chemical fuel that it is possible to develop in practical quantities . . . The next step is nuclear fission or fusion, says Dr. W. H. Schechter, vice president, in recent New York address.

3,400 MILES of zinc-coated wire will be stretched along both sides of the new northern Illinois toll highway now under construction, according to New Jersey Zinc Co. — that's one of the largest orders of fencing ever awarded in the highway construction field. Order went to U. S. Steel Corp.

COPPER TIDBITS — according to L. A. Walford's, "The ocean must yield more food" in the *Saturday Evening Post*, Government scientists have found that seed oysters can be protected from marine drill attacks by placing a piece of copper in the fence erected around the ocean seed bed.

Sodium copper cyanide double salt, developed by du Pont, is intended to replace the several steps required to make copper electroplating solution. Double salt reduces handling of chemicals and avoids errors in solution make-up.

RARE EARTHS METALS can be obtained in commercial quantities from Michigan Chemical Corp., St. Louis, Michigan. Metals have been added to Michigan's line of rare earth oxides. And, Union Carbide is reported to be using rare earth carbonates as the key catalyst in Carbide's new family of water-soluble ethylene oxide polymers — Polyox — which Carbide feels will have a wide variety of uses in the dry goods and cosmetic industries.

TUNGSTEN CARBIDE development by Kennametal Inc., Latrobe, Pa., may have far-reaching influence in the art of hardfacing and protecting surfaces from abrasion and wear. Kenplate is produced in the form of small hexagonal plates that are cemented in a continuous pattern on an adhesive glass fiber backing. Kenplate can be applied to any surface, smooth or flat or curved.

COLUMBIUM METAL and alloys are being produced in experimental quantities by Pigments Div., E. I. du Pont de Nemours & Co., Wilmington, Dela. Du Pont will supply material to Thompson Products, Inc., Cleveland, O., who will develop fabricating techniques.

CAPACITOR-GRADE TANTALUM has been developed by Kennametal Inc. Bars, sheets, foil and wire of 99.9% purity will soon be available in commercial quantities.

TIN was the only material that prevented the deteriorating action of seeping oxygen in packaged frozen fish in cold storage tests conducted by U. E. Fish and Wildlife Service. Report showed that fish frozen and kept in vacuum packed tin was far better than any other conventional package.

BERYLLIUM, add as 0.002% charge, to aluminum-magnesium alloy melts prevents the burning out of the magnesium during the smelting. Also, Al-Mg alloys with 0.005% Be can be used in green mold casting. Third finding was that a thin layer of aluminum-beryllium alloy (only a few tenths of a percent Be) forms a superior type surface coating for iron dipping use. These three developments were announced by Dr. E. Nachtigall, chief of research at Oesterreichische Aluminium Werke Ranshofen.

NEW CERAMIC COATINGS, developed by Bettinger Corp., will make it possible for metal parts and surfaces to withstand temperatures of 2500 deg F and up.

NEPHELINE is being used in Russian aluminum works at Volkhov, instead of bauxite, to produce alumina.

NICKEL is being recovered from the waste in the fat hydrogenation industry at 90 to 93% recovery by the Chemical Technology Dept., Bombay University. Process removes iron with peroxide, neutralizes excess acid, and extracts the fat with hexane. Residue is treated with sodium formate to give relatively pure nickel formate. Process is important to India, where a severe nickel shortage exists.

DUCTILE CERAMICS have been developed by the E. R. Parker, J. A. Pask and Jack Washburn of University of California for the U. S. Air Force. Air Force is pushing the research, since a usable ductile ceramic would have tremendous implications in rocket, missile and jet aircraft design.

STAINLESS STEEL without nickel is the claim following development work at the National Metallurgical Laboratory, Jamshedpur, India. Government will spend about $2.1-million for a plant to produce this material.

Oxygen steel is a pure and ductile material, plus the fact that its capital costs are lower than for an open hearth, says Jones & Laughlin Steel, at the opening of their two-furnace basic oxygen furnace plant at Aliquippa. Furnaces are operated in batch with oxygen being blown into the charge at the surface. Rated capacity of the new plant is 750,000 tons per year. Cost of the installation is estimated at about $11-million, or about $15 per annual ton.

WAX-LEAD material, designed for radiation shielding, has been demonstrated by AEC's Livermore, Calif. lab and will be marketed by California Ink Co., San Francisco. Wax-lead will reduce the necessary thickness of radiation shields.

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Nickel *(Continued from p. 6)*
was 21,494,000 lb, compared with 22,361,000 lb in August.

General imports of nickel into the U.S. in September comprised 17,166,339 lb of metal, 2,583,176 lb of matte, 1,927,068 lb of oxide powder and oxide sinter, and 37,744 lb of scrap from Canada; 2,047,232 lb of metal from Norway; 8,267,742 lb of oxide powder and oxide sinter from Cuba; 80,468 lb of metal from Japan; 1,000 lb of metal from United Kingdom; and 4,660 lb of scrap from Colombia. The nickel content of the new metal, matte, oxide powder and oxide sinter imported into the United States is estimated at 29,842,000 lb in September, compared with 24,175,000 lb in August.

Nickel (exclusive of scrap) consumed and in stock in the United States in September 1957, by forms, in pounds of nickel:

	Stocks Aug. 31	Consumption	Stocks Sept. 30	In transit Sept. 30
Metal	35,413,152	15,824,673	37,645,582	233,546
Oxide powder, sinter	6,077,025	2,522,525	6,564,958	344,490
Matte	865,542	1,896,477	901,472	...
Salts	475,619	110,712	438,359	...
	42,831,338	20,354,387	45,550,371	578,036

•

Third Quarter Antimony Output Increased 22%

In the third quarter of 1957, domestic smelter output of primary antimony totalled 2,800 short tons, an increase of 22% over the second quarter and the highest since the last quarter of 1956, according to the U.S. Bureau of Mines.

Based on reports for the first 9 months of the year, it is estimated that 1957 production will exceed that of 1956 by about 2%.

Consumption of primary antimony in the third quarter was 2,300 tons compared with 2,500 tons in the second and 2,900 tons in the first quarter. Should the downward trend continue in the fourth quarter, consumption for the year could be as much as 20% below the quantity used in 1956. Of the 7,800 tons consumed in the first 9 months, approximately 46% was used in the manufacture of metal products and 54% in nonmetal products.

Consumer, dealer, and smelter stocks of antimony decreased 9% in the July-September period and were almost 1,100 tons lower on September 30 than on Jan. 1.

Statistics of antimony in 1956, and January-September, 1957, in short tons, antimony content:

	1956	1957 Jan.-Mar.	Apr.-June	July-Sept.
Stocks beginning	8,406	7,863	7,737	7,429
Mine production	590	157	165	164
Smelter production	10,005	2,597	2,262	2,768
Production, secondary	24,106	4,768	4,431	4,079
Antimony from primary lead refineries	2,065	214	320	791
General imports	12,533	3,998	3,862	4,267
Exports ore, metal	65	...	28	33
Consumption primary	12,897	2,949	2,512	2,301
Stocks end	7,863	7,737	7,429	6,774

E&MJ QUOTATIONS

Daily Prices of Metals

Dec.	COPPER ELECTROLYTIC Domestic Refinery	Export Refinery	LEAD New York	St. Louis	ZINC (b) Delivered (a)	East St. Louis	ALUMINUM Primary Pig 99%	TIN Straits New York
12	26.100	21.650	13.000	12.800	10.500	10.000	26.000	92.250
13	26.200	21.800	13.000	12.800	10.500	10.000	26.000	92.750
14	No Market	21.800	13.000	12.800	10.500	10.000	26.000	92.750
16	25.650	21.950	13.000	12.800	10.500	10.000	26.000	93.750
17	26.450	22.950	13.000	12.800	10.500	10.000	26.000	93.000
18	26.300	23.100	13.000	12.800	10.500	10.000	26.000	92.750
Averages	26.140	22.208	13.000	12.800	10.500	10.000	26.000	92.875
Calendar Wk. Avgs.								
Dec. 9-14	26.310	22.296	13.000	12.800	10.500	10.000	26.000	92.667

(a) Prime Western Zinc sold on delivered basis at centers where freight from East St. Louis exceeds one-half cent a pound.

The above quotations are our appraisal of the major United States markets, based on sales reported by producers and their agencies. They represent payments received by producers for the product. They are reduced to the basis of cash, New York or St. Louis, as noted. Prices in cents per pound.

Copper, lead and zinc quotations are based on sales for prompt and future deliveries; aluminum weighted average prices are based on estimated sales and announced prices; tin quotations are for prompt delivery only.

COPPER prices, domestic, in the trade are quoted on a delivered basis, that is, delivered at consumer's plants. As delivery charges vary with the destination, the figures shown above are net prices at refineries on the Atlantic seaboard. Beginning Jan. 2, 1957, the average differential between delivered and f.o.b. prices is taken as 0.400c per lb.

COPPER quotations, foreign or export, reflect prices obtaining in the open market and are based on sales in the foreign market reduced to the f.o.b. refinery equivalent, Atlantic seaboard. On f.a.s. transactions, eff. Jan. 2, 1957, we deduct 0.125c, for lighterage, etc., to arrive at the f.o.b. refinery quotation.

COPPER quotations are for ordinary forms of wirebars and ingot bars. The premiums on special shapes, effective in some instances on deliveries beginning Sept. 1, 1955, are: Standard ingots 0.25c per pound; slabs 0.55c and up, cakes 0.6c and up, depending on weight and dimensions; billets 1.725c and up, depending on dimensions and quality. Discount on cathodes 0.125c to 0.15c per pound.

ZINC quotations reflect sales of the Prime Western grade as well as sales of other grades when sold on a Prime Western basis. (b) **Zinc premiums** . . . obtaining over Prime Western zinc in the East St. Louis market on the following grades, in cents per pound: **Selected 0.10c; Brass Special 0.25c; Intermediate 0.5c. High Grade** zinc sold on contract, delivered to the consumers' plants, commands a premium of **1.35c** per pound over the East St. Louis basis for Prime Western; **Special High Grade** premium or differential is **1.75c** per pound, effective Dec. 1, 1955.

LEAD quotations are for the common grade, and are based on sales of domestically refined metal sold to domestic consumers. The differential on sales in the Chicago district is 15 points under New York, for California 20 points under New York; for New England add 7½ points to the New York basis. Corroding grade commands a premium over common lead of 10 points.

ALUMINUM quotations refer to primary pig, 99%, delivered to consumers. The U. S. primary producers as well as the major exporter of primary aluminum to the U. S., quote prices delivered to consumers in the U. S. The weights are estimated on the basis of daily average primary capacity in those cases where daily sales or shipments are not available. Ingot sales by primary producers, reduced to the pig price, are included in calculating the quotation. The premium on standard ingots, 99+% is 2.1c per lb.

Note: The daily quotations for copper, lead and zinc are weighted averages of sales reported to *E&MJ;* weekly averages are arithmetical averages of the daily quotations; monthly averages are the arithmetical averages of the daily quotations.

Silver, Gold, and Sterling Exchange

Dec.	Silver N.Y.	London	Sterling Exchange	London Gold (a)
12	90.000	77.375d.	280.5000	249s. 6¼d.
13	89.875	77.375d.	280.5937	249s. 3½d.
14	Not Quoted			
16	89.875	77.375d.	280.6562	249s. 3¼d.
17	89.625	77.375d.	280.5625	249s. 4d.
18	89.625	77.125d.	280.4687	249s. 6d.
Av	89.800	—	280.556	—
Calendar Wk. Avgs.				
Dec. 9-14	89.975	—	280.506	—

The daily silver quotation reported by Handy & Harman, in cents and fractions of a cent per troy ounce, is the price paid by Handy & Harman in settlement for silver contained in unrefined silverbearing materials submitted to them for refining. It is determined on the basis of offers of bar silver .999 fine as made to Handy & Harman for nearby delivery at New York by regular suppliers in quantities sufficient to meet daily requirements, and it is usually one quarter cent below the price at which such offers are made.

The Treasury's purchase price of newly mined domestic silver was established at 90.5c per troy ounce, 1000 fine, effective on July 1, 1946 under an amendment to the Silver Purchase Act of July 6, 1939.

London silver quotations are in pence per troy ounce, basis .999 fine.

London gold quotations are per troy ounce, basis 1000 fine.

Sterling, in cents, noon buying rate for cable transfers as certified by the Federal Reserve Bank of New York, for customs purposes.

Aluminum Alloys Secondary Dec. 12-18

No. 13	25.88c
No. 43	26.49c
No. 360	Not Quoted
No. 380	22.27c

The secondary aluminum alloy prices are weighted average prices calculated from reports by secondary aluminum producers of the prices and quantities of their sales.

London Metal Exchange

Dec.	COPPER Cash Bid	Cash Asked	3 Mo Bid	3 Mo Asked	LEAD Current Month Bid	Current Month Asked	3 Mo Bid	3 Mo Asked	ZINC Current Month Bid	Current Month Asked	3 Mo Bid	3 Mo Asked	TIN Cash Bid	Cash Asked	3 Mo Bid	3 Mo Asked
12	177¼	178	181¾	182	69	69½	70¼	70½	61	61¼	61	61½	730	730½	730½	731
13	179	179½	183½	183¾	70¼	71	71½	71¾	61¾	62	62¼	62½	730	731	735	735¼
16	188½	189	193	193½	72¼	72½	72¾	73¼	62½	63	63	63¼	742	742½	740	742½
17	183	183¼	187¼	187½	72¼	72¾	73¼	73½	62½	62¾	62¾	62¾	730	730½	733	736
18	180½	180¾	185	185¼	72¼	72¼	72¾	73	62¾	63	62¾	63	730	730½	732½	733

Prices are for the official a.m. session in pounds sterling per ton of 2240 lb. Copper basis wire bars, lead 99.97%, zinc 98% and tin min. 99.75%.
CORRECTION: Nov. 5 Lead 3-mon. ask was £85; Nov. aver. was £83.310.

THIS WEEK'S BUSINESS INDICATORS

	Latest Week	Preceding Week	Month Ago	Year Ago	Net Change Year Ago
Steel Rate (% of capacity in operation)	(d)67.9	(a)69.2	76.0	102.6	−34.7
Steel Ingot Production, thousands of tons	(d)1,739	(a)1,770	1,945	2,525	−786
Automobile Production (cars and trucks)	(d)174,593	(a)167,761	173,382	195,168	−20,575
Electric Power Output (millions kwh.)	12,315	11,613	11,914	12,047	+268
Engr'g Const. Awards, 4-week daily av., in thousands (c)	$46,603	$49,501	$53,213	$73,264	−$26,661
Federal Reserve Index of Industrial Production (e)	(d)141 Nov.	.....	142	147	−6
E&MJ Index of Nonferrous Metal Prices (e)	175.46 Nov.	.....	176.22	216.51	−41.05
All Commodities, Bureau of Labor Statistics (e)	118.0 Nov.	.....	117.7	115.9	+2.1

(a) Revised. (b) 100 is composite of 1922-3-4. (c) From Eng. News-Record. (d) Preliminary. (e) Base period 1947-49

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Quicksilver *(Continued from p. 3)*

Ore.; Gordon I. Gould, president of Gordon I. Gould Co., San Francisco; M. H. Kline, vice president of Rare Metals Corp, Salt Lake City; C. Hyde Lewis, president of New Idria Mining & Chemical Co., Idria, Calif.; R. F. O'Bryan, president of California Quicksilver Mines Inc., Willows, Calif.; C. N. Schuette, consulting mining engineer, Sebastopol, Calif; and S. H. Williston, vice president of Cordero Mining Co., Palo Alto, Calif.

The institute will represent the industry on such issues as tariffs and government regulations. Its first action was to send a telegram to GSA Administrator Franklin G. Floete protesting the recent change in quicksilver flask specifications. Signed by President Smith, the message protested "this harsh, unreasonable and unwarranted attitude of your office" and urged him "to reconsider this unfair action." The new specifications, it added, "call for a special bottle manufactured by one outfit only at an excessive price, not available to industry in sufficient amount and in enough time to supply (the industry's) requirements."

One of the institute's aims is to keep the Government and the consuming industry familiarized with physical and chemical characteristics of mercury and with its uses. The organization also will sponsor research and development work aimed at finding new uses for the metal.

Founders of the institute claim it represents 95% of the country's mercury industry.

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Mt. Isa Mine to Build Townville Copper Refinery

Melbourne, (McGraw-Hill World News): Mt. Isa Mines Ltd. of Queensland, Australia, which is controlled by American Smelting & Refining Co., will borrow substantial sums to help finance large-scale expansion at the mine and erection of the copper refinery at Townsville, Queensland.

Close to $3.5-million will be raised in debentures to finish the $8-million refinery and short-term finance has been arranged against the pipelines of metals from mines to markets (valued at cost at $15-million). This should provide funds to complete the expansion of ore production to 7,000 tpd by December 1959.

The planned increase in production will reduce costs and the decline in metal prices will have to be countered by some reductions in development and exploration expenditures. Production rate of 7,000 tpd of ore would achieve the intermediate stage of the expansion program but will account for only 60% of the total expansion program aimed at increasing the current rate of 4,000 tpd of ore to 13,000 tpd.

The Australasian Bureau of McGraw-Hill World News understands that a production rate of 6,000 tpd is likely to be achieved in April/May 1958 and that the Townsville refinery should be in operation in June 1959.

Non-Metallic Minerals

Prices received vary and depend upon the characteristics of the commodity. Hence quotations can serve only as a general guide to the prices obtained by producers and dealers for their product.

Tons of 2,000 lb unless otherwise noted. Short ton—st; long ton—lt.

ASBESTOS—Per st, f.o.b. mines Quebec Canadian funds, eff. Oct. 1, 1957: Crude No. 1 $1,470@$1,810; Crude No. 2 $788@$1,155.

Spinning fibers: 3-F $593; 3-K $480@$504; 3-R $408@$428; 3-T $383@$402; 3-Z $353@$370.

Shingle stock: 4-K $190@$220; Paper stock: $120@$142; Waste: $82@$86; Shorts: $27@$75.

Per st, f.o.b. Vancouver, B.C., Canadian funds, eff. Oct. 1, 1957: Crude No. 1 $1,522, AAA $787, AA $682, A $494, AC $325, AK $220.

Per st, f.o.b. Morrisville, Vt., U. S. funds: Spinning fiber, $353@$383, shingle fiber, $172@$190; paper fiber, $114@$145; waste, stucco or plaster, $82; refuse or shorts, $39@$72.

BARYTES — F.o.b. cars

Georgia: Barytes ore, crude, jig and lump, $18 per net st; beneficiated, $21 per net st, in bulk, $23.50@$25 in bags.

Missouri: Per st, water ground and floated, bleached, $45@$49, carlots, f.o.b. works. Crude ore, minimum 94% $BaSO_4$, less than 1% iron, $16@$18. Crude oil well drilling, min. 4.3 specific gravity, bulk, st, $18. Some restricted sales, $11.50. Ground, oil well grade, $26.75.

Foreign, crude oil well drilling, minimum 4.25 specific gravity, bulk, st c.i.f. Gulf ports, $16@$18.

Canada: Crude, in bulk, f.o.b. shipping points, $11 per lt; ground, in bags, $16.50 per st.

BAUXITE — Per lt. Domestic ore chemical, crushed and dried, 55 to 58% Al_2O_3, 1.5 to 2.5% Fe_2O_3, $8.00@$8.50, f.o.b. Alabama and Arkansas mines. Other grades, 56 to 59% Al_2O_3, 5 to 8% SiO_2, $8.00@$8.50, f.o.b. Arkansas mines. Pulverized and dried, 56 to 59% Al_2O_3 8 to 12% SiO_2, $14@$16, f.o.b. Arkansas mines. Abrasive grade, crushed and calcined, 80 to 84% Al_2O_3, $17, f.o.b. Arkansas mines. Crude (not dried) 50 to 52%, $5.00@$5.50, f.o.b. Arkansas mines.

Imported bauxite, calcined, crushed (abrasive grade) 86% min. Al_2O_3, $19.95 per lt, f.o.b. port of shipment, Br. Guiana, Refractory grade bauxite, $25.40.

Approx. 58% Al_2O_3, and 8% silica f.o.b. vessels Brit. Guiana $7.14 per lt according to quality.

CORUNDUM — Per st, crude, c.i.f. U.S. ports, $100@$120, nominal.

FELDSPAR—per st, f.o.b. point of shipment, N. C., bulk: 200 mesh, $18.50; 325 mesh, $22.50; glass, No. 18 grade, $12.50; semi-granular, $10-$11.

FLUORSPAR — Metallurgical grade, effective CaF_2 content, per st, f.o.b. shipping point Illinois and Kentucky, (the higher prices are for spot lots):

	Short Ton
72½%	$37@$41
70%	$36@$40
60% plus	$33@$36.50
Pellets, 65%	$33

Acid grade concentrates, per st, bulk, carload lots:

F.o.b. Illinois-Kentucky, and Colorado $50; some sales at $55. In bags, $4@$5 extra. Eff. Dec. 1, 1956.

Ceramic grade, 95% CaF_2, $45@$48; 93 to 94% CaF_2, calcite and silica variable; Fe_2O_3 0.14%, $43@$46 per st, in bulk, f.o.b. Illinois-Kentucky. In 100-lb paper bags, $4@$5 extra. Eff. Dec. 1, 1956.

European fluorspar c.i.f. U.S. ports, duty paid, per st: Metallurgical grade, 72½% effective CaF_2, spot, $34@$35; contracts, $30@$33; acid grade, 0.3% moisture max., contracts $50@$52, spot $1 more. Large discount for high moisture.

Mexican fluorspar, f.o.b. border, metallurgical, 72½% effective CaF_2 content, all rail, duty paid, $25 per st; barge, Brownsville, Tex., $27.

GRAPHITE — Per lb, carload lots, f.o.b. shipping point: Crystalline flake, natural; 86 to 88% C, crucible grade, 13c; 96% C, special and dry usage, 22c; 94% C, normal and wire-drawing, 19c; 98% C, special for brushes, etc., 26½c.

Amorphous, natural, for foundry facings, etc., up to 85% C, 9c.

Madagascar, c.i.f. New York, "standard grades 85 to 87% C," $235 per st; special mesh $260; special grade 99% C, nominal.

Amorphous graphite, Mexican, f.o.b. point of shipment (Mex.) per metric ton $12@$18 depending on grade.

KYANITE — Per st f.o.b. point of shipment, Va. and S.C., 35 mesh, carload lots, in bulk $29; in bags $32. For 200 mesh, in bags, carload lots, $40.

Imported kyanite, 60% grade, in bags, c.i.f. Atlantic ports $76@$81 per st.

MAGNESITE — Per st, f.o.b. Chewelah, Wash., dead burned grain, in bulk $46; in bags $52@$54.

MICA — Prices prevailing in the North Carolina district for clear sheet mica, per lb, follow:

Size	Per Pound
1½ x 2 inch	.70 to $1.10
2 x 2 "	$1.10 to $1.60
2 x 3 "	$1.60 to $2.00
3 x 3 "	$1.80 to $2.30
3 x 4 "	$2.00 to $2.60
3 x 5 "	$2.60 to $3.00
4 x 6 "	$2.75 to $4.00
6 x 8 "	$4.00 to $8.00

Punch mica, 7c@12c per lb, according to size and quality.

Stained or electric sheet mica is being sold at approximately 10 to 20% lower than for clear.

North Carolina, wet ground, $140@$155 per st, depending on fineness and quantity. Dry ground, $32.50@$70. Scrap, $25@$30, depending on quality.

Madagascar sheet mica first quality high heat, duty paid, New York, per lb: Grade 7 (below 1 sq in.) 50c; Grade 6 (1 to 1½) 85c; Grade 5 (3 to 6) $1.20; Grade 4 (6 to 10) $1.50; Grade 3 (10 to 14) $1.90.

MONAZITE — Per lb, c.i.f. U. S. ports, 55% total rare earth oxides, including thorium, massive, 14c. Sand, 55% grade, 15c; 66%, 18c; 68%, 20c, nominal.

OCHER — Per st, f.o.b. Georgia mines, $26.50@$32 in 100-lb paper bags.

F.o.b. Virginia, dark yellow, 300 mesh, 60% ferric oxide, in bags, $24.50@$25.50.

(For others see Dec. 5 issue)

SLAB ZINC

★ ELECTROLYTIC
Special High Grade
High Grade
Continuous Galvanizing Line Grades

★ FIRE RETORT
High Grade
Intermediate
Continuous Galvanizing Line Grades
Brass Special
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Mineral and Ore Markets

Tungsten ores fell more in Europe. London is now being quoted at 102 shillings bid and 107 shillings asked per long ton unit. But some factors say they believe most ore is being sold at lower prices. Some say some is being sold at under 100 shillings.

The market in the U. S. is being depressed, according to some suppliers. A major supplier, which is also a large integrated manufacturer of ferro-alloys, has been selling tungsten ores, both wolframite and scheelite, on long term contracts at flat prices. These contracts provide that the buyer state his needs each month. Presumably the buyer will take some fixed proportion of his needs from the indicated supplier. We are uncertain of the prices but some observers say lower grades go for as low as $17 per short ton unit (no import duty is involved). Our ore price quotations are not as low as this. If and when we can confirm new prices, we shall change our quotation.

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Iron ore prices for the Itabira ore from Brazil are to be the same for 1958 as they were in 1957 — $14.60 per gross ton f.o.b. shipping point. Other Brazilian iron ores (which are largely sold through Rio de Janerio) apparently are feeling the pinch of the depressed state of the ferrous metal industries in the U. S. These ores normally show greater price variation than the Itabira ore. Last year we are told they were bringing slightly higher prices. For 1958 they are sold as low as or a little lower than the Itabira ore.

Freight rates on iron ores are down also. Brazilian ores are shipped probably at about $4.75 per ton; this is down about $2. Chilean ores are also down — we are told these may be down to near $7 from $12.

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Higher grade manganese ore prices are unchanged. But many suppliers say the lower grade ores are very weak and that prices are hard to estimate. Some factors indicate even some of the larger mining firms in India are now advertising for buyers. Some suggest this indicates that material can be purchased at extremely low prices — but no one wants it.

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Zircon ore business is apparently discouraging to all factors. We hear some U. S. miners are cutting back their output. Some point out this is much easier for this kind of mining than most — shut down and starting up costs are very low for zircon and rutile mining operations. Some indicate the Australians are now asking about £9½ Australian f.o.b. ports (about $2.24 per £) and that freight is about $25.

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Quicksilver is $225-30 per flask, large lots, N. Y. GSA has notified participants in the Mercury Purchase Programs of the following:

"We wish to announce that the mercury flask specification contained in purchase regulation eleven, revision one, is being re-evaluated by an independent research agency. Pending the report on the latter's finding, we shall accept flasks fabricated from resistance welded steel tubing having a minimum wall thickness of 11 gauge, or 0.120 inches, as the equal of flasks fabricated from "seamless" tubing.

"The flasks are to meet the regulation specifications in all other respects.

"Spun, cast or blown flasks which meet or exceed the requirements of the revised regulation are also acceptable."

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A Custom Smelter Copper Price December 12-18

The following prices are computed by *E&MJ Metal and Mineral Markets* from data on flat price and average price sales reported by the American Smelting & Refining Co. They refer to electrolytic copper in standard shapes.

Delivered consumers' plants....25.000c
F.O.B. refinery 24.600c

They are for sales in the U. S. market and are adjusted to the nearest one-eighth cent. A one-quarter cent deduction for selling commission has been made.

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Smelters' Aluminum Alloys

Delivered prices of smelters' aluminum ingot. per pound, in lots of 10,000 lb. or more.

Piston alloy D132 24@25c. No. 12 alloy 22½@23c; No. 13 alloy, max. .30 copper, 25@26c.

Deoxidizing grades: No. 1, 23@24; No. 2, 21¾@22½c; No. 3, 20½@21½c; No. 4, 18¼@19¼c.

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Tri-State Concentrates

Joplin, Dec. 17, 1957

(a) *Blende*	*Per Ton*
Prime coarse (60% zinc)	$56
Flotation, 60% zinc	$56

(a) Effective July 8, 1957

Galena	
Coarse and flotation, 80% lead	(a)$156.12

(a) Effective December 2, 1957 **(Corrected)**

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Brass and Bronze Ingot

85-5-5-5 (No. 115) 27¼c; 80-10-10 (No. 305) 31¼c; 88-10-2 (No. 215) 34c. Yellow, (No. 405) 22¾c, and upward. Manganese bronze (No. 420) 24c.

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Smelters' Copper Scrap Prices

Custom smelters' buying prices for scrap, carload lots, refinery:

No. 1 copper and wire, 20½c; No. 2 heavy copper, 19c; light copper, 16¾c; refinery brass, 18½c.

Dealers' Scrap Prices

Dealers' buying prices, f.o.b. New York or equivalent freight points, for wholesale quantities, in cents per lb.

No. 1 copper wire	18½@19
Heavy copper & wire, mixed	16½@17
Light copper	14@14½
No. 1 composition	14½@15
Composition turnings	14@14½
Light brass	9@9½
Yellow brass turnings, mix	9@9½
Heavy yellow brass, mixed	11@11½
Auto radiators, unsweated	12@12½
Brass pipe, cut	12½@13
Rod brass turnings, No. 1	11½@12
Rod ends, brass	12@12½
New soft brass clips	13½@14
Cast aluminum, mixed	10½@11
Aluminum crankcases	10½@11
Aluminum clips, new soft	13½@14
Sheet aluminum, old clean	10½@11
Aluminum turnings, clean	6½
Zinc die cast, mixed	1¾
Zinc die cast, new	3
Old zinc	3
New zinc clips	4½
Soft or hard lead	9@9½
Battery plates	4
Babbitt mixed	10½@11
Linotype or stereotype	11½@12
Electrotype	10@10½
Solder joints close cut	15½@16
Block tin pipe	75@76
Autobearing babbitt	35@36
Monel clips, new	30@35
Monel sheet, clean	30
Nickel, rod ends	45@50
Nickel, clippings	45@50

Refractories

CHROME BRICK — Per ton f.o.b. shipping point: Chemically bonded Balt. $105, Calif. $115, burned, $99.

FIRECLAY BRICK—Per M, first quality, $128., Missouri, Kentucky, Pennsylvania; second quality, $114. Ohio, No. 1, $120; No. 2, $103.

MAGNESITE — Brick, per ton f.o.b. works, 9-in. straights, $121; chemically bonded, $116.

SILICA BRICK—Per M, Pennsylvania, $155; Alabama, $150; Illinois, $160.

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Iron, Steel, and Coke

PIG IRON — Per gross ton Valley furnaces: Bessmer, $67.00, basic, $66.00 and No. 2 foundry $66.50.

STEEL — Per net ton, f.o.b. mill, Pittsburgh, billets and slabs, $77.50; Bars per 100 lb, $5.525; plates and structural shapes, $5.10@$5.275.

STEEL SCRAP — Per gross ton, delivered Pittsburgh, No. 1 heavy $32-33 No. 2 heavy $30-31. Cleveland, No. 1 heavy $27-28, No. 2 heavy $21-22.

COKE — Per ton, Connellsville furnace, $15.25; foundry, $18.25.

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Lead Average (Monterrey)

The net price realized by the American Smelting & Refining Co. on all of its sales of Mexican pig lead, including metal sold for consumption in Mexico, during the week ended Dec. 14, 1957, was 8.77c (U.S.) per lb. f.o.b. refinery Monterrey, Mex.